

ABSTRACT OF THE DISCLOSURE

A dynamic infeed control is used to segment swarf produced in a lathing operation into short manageable segments. The preferred dynamic method for segmenting the swarf is to add a sine wave motion to the nominal infeed motion. The amplitude of the sine wave is 0.5 times the nominal infeed, although this may vary somewhat due to the properties of the specific material being machined. The frequency of the sine wave is a non-zero integral multiple of the rotational frequency of the lens plus 0.5. Thus the minimum sine wave frequency will be 1.5 times the rotational frequency of the lens and this factor may increase by increments of 1. In equation form, $W_{sw} = (n + 0.5) \times W_{RL}$ where W_{sw} is the frequency of the sine wave, W_{RL} is the rotational frequency of the lens and n is an integer equal to or greater than 1. Thus relative minima and maxima are created during one lens rotation that correspond to the relative maxima and minima on the next lens rotation, respectively. This causes the width of the strand of swarf to cycle in a range between approximately twice the nominal infeed and zero. Reducing the width of the strand to zero results in segmenting or breaking the strand of swarf. Because it may not be necessary to fully reduce the width of the strand to zero to break it, the amplitude of the sine wave may be relaxed somewhat depending on the material in question.